

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/IB2004/002109

International filing date (day/month/year)
22.06.2004

Priority date (day/month/year)
27.06.2003

International Patent Classification (IPC) or both national classification and IPC
H04N7/26, H04N7/50

Applicant
KONINKLIJKE PHILIPS ELECTRONICS N.V.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☒ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/IB2004/002109

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/IB2004/002109

Box No. II Priority

1. ☒ The following document has not been furnished:

☒ copy of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(a)).

☐ translation of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-9
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1-9
Industrial applicability (IA)	Yes: Claims	1-9
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Re Item V.

1 The following documents are referred to in this communication:

- D1 : XIAOAN LU ET AL: "Power efficient H.263 video transmission over wireless channels" PROCEEDINGS 2002 INTERNATIONAL CONFERENCE ON IMAGE PROCESSING. ICIP 2002. ROCHESTER, NY, SEPT. 22 - 25, 2002, INTERNATIONAL CONFERENCE ON IMAGE PROCESSING, NEW YORK, NY : IEEE, US, vol. VOL. 2 OF 3, 22 September 2002 (2002-09-22), pages 533-536, XP010607378 ISBN: 0-7803-7622-6
- D2 : SCHWARZ H ET AL: "LAGRANGIAN CODER CONTROL AND COMPARISON OF MPEG-4 AND H-26L VIDEO CODECS" ITG FACHBERICHTE, VDE VERLAG, BERLIN, DE, no. 170, 28 January 2002 (2002-01-28), pages 301-308, XP008004829 ISSN: 0932-6022
- D3: SULLIVAN G J ET AL: "RATE-DISTORTION OPTIMIZATION FOR VIDEO COMPRESSION" IEEE SIGNAL PROCESSING MAGAZINE, IEEE INC. NEW YORK, US, vol. 15, no. 6, November 1998 (1998-11), pages 74-90, XP001064929 ISSN: 1053-5888
- D4: CHADDHA N ET AL: "A low power video encoder with power, memory and bandwidth scalability" VLSI DESIGN, 1996. PROCEEDINGS., NINTH INTERNATIONAL CONFERENCE ON BANGALORE, INDIA 3-6 JAN. 1996, LOS ALAMITOS, CA, USA, IEEE COMPUT. SOC, US, 3 January 1996 (1996-01-03), pages 358-363, XP010157168 ISBN: 0-8186-7228-5

2 INDEPENDENT CLAIM 1

2.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject matter of claims 1, 7 and 9 does not involve an inventive step in the sense of Article 33(3)PCT.

2.1.1 Document D1, which is considered to represent the most relevant state of the art to the subject matter of claim 1, discloses:

A method of encoding a sequence of pictures, a picture being divided into blocks of data, said encoding method comprising the steps of:

- computing a residual error from a difference between a current block

contained in a current picture and a candidate area using a prediction function; (see Introduction; standard block based encoder);

- computing an entropy of the residual error block (see paragraph 2.1);
- computing an overall error between said current block and said candidate area; ?
- estimating a power consumption of a video processing device implemented to said prediction function (see paragraph 3.1);
- optimizing a rate-distortion function on the basis of entropy, overall error and estimated power consumption of the video processing device; ?

*En fait D1
ne trait pas
d'estimation de
mouvement.*

2.1.2

The subject-matter of independent claim 1 differs from the disclosure of D1 in that :

The prediction function is selected in claim 1 based on the rate distortion value which is calculated. Such selection of prediction functions based on some kind of cost factors is however known from D3 (see e.g. page 88).

The skilled person will readily apply the technique of D3 to optimize cost functions to select certain coding functions.

*- pas d'imitation
- prediction function
≠ motion estimator
classique*

Therefore the features disclosed in D1 and D3 would be combined by the skilled person, without exercise of any inventive skills in order to solve the problem posed. The proposed solution in independent claim 1 thus cannot be considered inventive (Article 33(3) PCT).

The subject-matter of independent claims 7, and 9 relates to an apparatus and a computer program product, respectively, for carrying out the method of claim 1. As a consequence the subject-matter of these claims is also considered to lack inventive step.

3

DEPENDENT CLAIMS 2-6, 8

Dependent claims 2-6, 8 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step (Article 33(3) PCT).

For example the use of power consumption (as in claim 2) as a constraint is

well known from D1 (see page 535, paragraph 4). Computation of a power-rate distortion for a number of pictures (as in claim 3) belongs to the common general knowledge of the skilled person, and the possibility of estimating the power consumption of a device based on its operations (as in claim 5) is also well known to the skilled person.

4 Article 33(4) PCT

The subject-matter of claims 1-9 is industrially applicable in the field of hand held encoding apparatuses.

Re Item VII.

1. Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the documents D1, D2 and D4 are not mentioned in the description.
2. The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).
3. In order to facilitate the examination of the conformity of the amended application with the requirements of Article 34(2)(b) PCT, the applicant is requested to clearly identify the amendments carried out, no matter whether they concern amendments by addition, replacement or deletion, and to indicate the passages of the application as filed on which these amendments are based (see also Rule 66.8(a) PCT).